What is claimed is:

1. A system, comprising:

a signal input circuit; and

a controller circuit, including:

a predetermined state detector, coupled to the signal input circuit, to detect at least one of a heart rate state, a cardiac rhythm state, a patient activity state, a respiration state, and a metabolic need state; and

a rate smoothing module, coupled to the predetermined state detector, including at least one rate smoothing algorithm, the rate smoothing module configured to select or adjust the rate smoothing algorithm based on whether the predetermined state is present, the rate smoothing algorithm including a first rate smoothing percentage to limit a degree of pacing rate increase and a second rate smoothing percentage to limit a degree of pacing rate drop.

2. The system of claim 1, wherein the signal input circuit includes at least one cardiac sensing electrode.

3. The system of claim 1, wherein the predetermined state detector includes a comparator having a heart rate input and a predetermined threshold input, and a comparator output representative of the predetermined state.

4. The system of claim 3, wherein the predetermined state is a high heart rate that exceeds the predetermined threshold.

5. The system of claim 3, wherein the predetermined threshold is a predetermined threshold window being a predetermined heart rate range, and the predetermined state represents the heart rate in the predetermined heart rate range.

6 The system of claim 3, wherein the heart rate is an atrial heart rate.

7. The system of claim 1, wherein predetermined state detector includes a morphology comparator having an cardiac signal input and a morphology template input, and a comparator output representative of a predetermined cardiac rhythm.

8. The system of claim 7, wherein the predetermined cardiac rhythm includes at least one of a normal sinus rhythm, an atrial tachycardia, an atrial fibrillation, a ventricular tachycardia, a ventricular fibrillation, and a bradycardia.

9. The system of claim 1, wherein the signal input circuit includes an accelerometer providing an acceleration-based indication of activity, and the predetermined state detector includes a comparator having an activity input and a predetermined activity level input, and a comparator output representative of the predetermined state.

10. The system of claim 9, wherein the predetermined state is a high activity level that exceeds the predetermined activity level.

11. The system of claim 9, wherein the predetermined activity level is a predetermined activity window being a predetermined activity range, and the predetermined state represents the activity being within the predetermined activity range.

12. The system of claim 1, wherein the signal input circuit includes a respiration signal sensor, and the predetermined state detector includes a comparator having a respiration signal input and a predetermined respiration level input, and a comparator output representative of the predetermined state.

13. The system of claim 12, wherein the predetermined state is a high respiration level that exceeds the predetermined respiration level.

14. The system of claim 12, wherein the predetermined activity level is a predetermined activity window being a predetermined respiration signal range, and the predetermined state represents the respiration signal being within the predetermined respiration range.

15. The system of claim 1, wherein the second rate smoothing percentage is set independently of the first rate smoothing percentage.

16. A method, comprising:

monitoring a signal;

determining whether a state of the signal corresponds to a predetermined state including at least one of a heart rate state, a cardiac rhythm state, a patient activity level state, a respiration state, and a metabolic need state; and

selecting a rate smoothing algorithm based on the determined state, the rate smoothing algorithm including a first rate smoothing percentage to limit a speed of pacing rate increase and a second rate smoothing percentage to limit a speed of pacing rate drop.

17. The method of claim 16, wherein monitoring the signal includes monitoring a cardiac signal, and the determining includes determining whether a heart rate exceeds a predetermined threshold.

18. The method of claim 17, wherein the heart rate includes an atrial heart rate.

19. The method of claim 16, wherein monitoring the signal includes monitoring a cardiac signal, and the determining includes determining whether the heart rate falls within a predetermined range of heart rates.

20. The method of claim 19, wherein the heart rate includes an atrial heart rate.

21. The method of claim 16, wherein monitoring the signal includes monitoring a cardiac signal, and the determining includes determining whether the start matches a predetermined cardiac rhythm.

22. The method of claim 21, wherein the predetermined cardiac rhythm includes at least one of a normal sinus rhythm, an atrial tachycardia, an atrial fibrillation, a ventricular tachycardia, a ventricular fibrillation, and a bradycardia.

23. The method of claim 16, wherein monitoring the signal includes monitoring an activity signal indicating a metabolic need.

24. The method of claim 23, wherein the monitoring the signal includes monitoring an accelerometer signal.

25. The method of claim 23, wherein the monitoring the signal includes monitoring a respiration signal.

26. The method of claim 23, wherein the determining includes determining whether the activity signal exceeds a predetermined activity level.

27. The method of claim 23, wherein the determining includes determining whether the activity signal falls within a predetermined range of activity levels.

28. The method of claim 16, wherein selecting a rate smoothing algorithm based on the predetermined state includes using a look-up table to map a rate smoothing algorithm to the predetermined state.

29. The method of claim 16, further including selecting the first and the second rate smoothing percentages based on the determined state.

30. The method of claim 29, wherein selecting the first and the second rate smoothing percentages includes using a look-up table to map the first and the second rate smoothing percentages to the predetermined state.

31. The method of claim 16, wherein selecting the rate smoothing algorithm based on the determined state includes selecting based on at least one of a heart rate and an activity level.

32. A method, comprising:

monitoring a signal;

determining whether a state of the signal corresponds to at least a predetermined heart rate state; and

selecting a rate smoothing algorithm based on the determined state, the rate smoothing algorithm including a first rate smoothing percentage to limit a speed of pacing rate increase and a second rate smoothing percentage to limit a speed of pacing rate drop.

33. A method, comprising:

monitoring a signal;

determining whether a state of the signal corresponds to at least a predetermined cardiac rhythm state; and

selecting a rate smoothing algorithm based on the determined state, the rate

smoothing algorithm including a first rate smoothing percentage to limit a speed of pacing rate increase and a second rate smoothing percentage to limit a speed of pacing rate drop.

34. A method, comprising:

monitoring a signal;

determining whether a state of the signal corresponds to at least a predetermined patient activity level state; and

selecting a rate smoothing algorithm based on the determined state, the rate smoothing algorithm including a first rate smoothing percentage to limit a speed of pacing rate increase and a second rate smoothing percentage to limit a speed of pacing rate drop.

35. A method, comprising:

monitoring a signal;

determining whether a state of the signal corresponds to at least a predetermined respiration state; and

selecting a rate smoothing algorithm based on the determined state, the rate smoothing algorithm including a first rate smoothing percentage to limit a speed of pacing rate increase and a second rate smoothing percentage to limit a speed of pacing rate drop.

36. A method, comprising:

monitoring a signal;

determining whether a state of the signal corresponds to at least a predetermined metabolic need state; and

selecting a rate smoothing algorithm based on the determined state, the rate smoothing algorithm including a first rate smoothing percentage to limit a speed of pacing rate increase and a second rate smoothing percentage to limit a speed of pacing

rate drop.

37. A system, comprising:

a sensor, to monitor a physiologic parameter other than intrinsic electrical cardiac depolarizations, the sensor including an output to provide a sensed physiologic parameter; and

a pacing rate controller circuit, including a rate smoothing module coupled to the sensor to receive the sensed physiologic parameter, the rate smoothing module configured to perform, based on the sensed physiologic parameter, at least one of: activating rate smoothing, deactivating rate smoothing, and adjusting a rate smoothing parameter.

38. The system of claim 37, in which the sensor includes an accelerometer.

39. The system of claim 37, in which the sensor includes a respiration sensor.

40. The system of claim 37, in which the sensor includes a pressure sensor.

41. The system of claim 37, in which the physiologic parameter includes an indicator of a metabolic need for a particular heart rate.

42. The system of claim 37, wherein the rate smoothing module includes a first rate smoothing percentage to limit a speed of pacing rate increase.

43. The system of claim 42, in which the rate smoothing module includes a second rate smoothing percentage to limit a speed of pacing rate drop.